

CLAIMS

What is claimed is:

- 5 1. A method of forming a uniform illumination pattern in a back-light plate, the back-light plate comprising two parallel illuminating faces and an incident side on one side of the back-light plate, and when a visible light incidents from the incident side into the back-light plate,
- 10 the back-light plate reflect the visible light through the two illuminating faces, the method utilizing a press with a plurality of protruding elements to press an illuminating face of the back-light plate so as to form a plurality of recesses with predetermined depths thereon, wherein the
- 15 plurality of recesses forms the uniform illumination pattern on the back-light plate to make the back-light plate uniformly illuminated when the visible light incidents into the back-light plate.
- 20 2. The method of claim 1 wherein the back-light plate is utilized inside a flat-bed scanner for generating a back-light source to scan a transparent document, or is utilized in an LCD monitor for generating a back-light source to illuminate an LCD panel.
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3. The method of claim 1 wherein the recess size and the spacing with its adjacent recess depend on the distance between the recess and the incident side of the back-light plate, and when the distance between the recess and the
- 30 incident side is longer, the recess size is designed larger and the spacing with its adjacent recess is designed shorter.

4. The method of claim 1 wherein the press comprises:
a roller, the plurality of protruding elements being formed
on a rolling surface of the roller; and
5 a base for holding the back-light plate;
wherein when the roller rolls against one illuminating face
of the back-light plate, the plurality of protruding
elements on the rolling surface of the roller force the
illuminating face to form the plurality of recesses with
10 predetermined depths thereon.
5. The method of claim 1 wherein the press is heated to
make the plurality of protruding elements easily pressed
into the illuminating face of the back-light plate before
15 being pressed on the back-light plate.
6. The method of claim 1 wherein the press comprises:
a substantially flat pressing face, the plurality of
protruding elements being formed on the pressing face;
20 and
a base for holding the back-light plate;
wherein when being pressed on one illuminating face of the
back-light plate, the plurality of protruding elements
force the illuminating face to form the plurality of
25 recesses with predetermined depths thereon.
7. The method of claim 6 wherein the press further comprises:
a first depth limiter positioned on the periphery of the
pressing face; and
30 a second depth limiter positioned on the periphery of the
base;
wherein when the pressing face is pressed on the back-

light plate, the first depth limiter touches against the second depth limiter so that the plurality of recesses are formed on the illuminating face with predetermined depths.